

10/585296

1AP20 Rec'd PCT/PTO 06 JUL 2006

1

SEQUENCE LISTING

<110> Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo

Tadanori Mayumi

Yasuo Tsutsumi

Shinsaku Nakagawa

<120> TNF antagonist and TNF inhibitor containing it as an effective ingredient

<130> WO1042

<160> 90

<210> 1

<211> 157

<212> PRT

<213> human

<400>

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
          85           90           95
Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

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<210> 2

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 2

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15

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gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65          70          75          80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggc gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

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<210> 3

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 3

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gtc aga tca tct tct cga acc ccg agt gac gcg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Ala Pro Val Ala His Val
      1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240

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Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc cgg gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Arg Val Asn Leu Leu Ser Ala
 85 90 95
 atc gcc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc ctc 336
 Ile Ala Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Leu
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag acc 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Thr
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 4

<211> 471

<212> DNA

<213> Artificial Sequence

<400> 4

gtc aga tca tct tct cga acc ccg agt gac gcg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Ala Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tgg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc gac gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc gcc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc ctc 336
 Ile Ala Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Leu
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag acc 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Thr

115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 5
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<400> 5
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Xaa Asn Xaa Xaa
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Xaa Xaa Xaa Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 6
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<400> 6
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg nns aac nns nns 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Xaa Asn Xaa Xaa

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                20                25                30
gcc aat gcc ctc ctg gcc aat gcc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
    35                40                45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50                55                60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65                70                75                80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
    85                90                95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
    100                105                110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
    115                120                125
ggc gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
    130                135                140
nns nns nns ggg cag gtc tac ttt ggg atc att gcc ctg
Xaa Xaa Xaa Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
    145                150                155

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<210> 7

<211> 157

<212> PRT

<213> Artificial Sequence

<400> 7

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1                5                10                15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
    20                25                30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
    35                40                45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50                55                60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65                70                75                80
Ser Arg Ile Xaa Xaa Xaa Xaa Xaa Xaa Pro Val Asn Leu Leu Ser Ala
    85                90                95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
    100                105                110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro

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115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 8
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<400> 8
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc nns nns nns nns nns nns ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Xaa Xaa Xaa Xaa Xaa Xaa Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 9
 <211> 157
 <212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.5

<400> 9

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Ser His
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
        35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
        50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
        65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
        100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
        130          135          140
Ser Gly Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

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<210> 10

<211> 146

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.6

<400> 10

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Arg Tyr
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
        35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
        50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
        65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala

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      85      90      95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100      105      110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
Ser Met
145

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<210> 11
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 7

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<400> 11
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1      5      10      15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp His Asn Asn Thr
      20      25      30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50      55      60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65      70      75      80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85      90      95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100      105      110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
Asp Ser Asn Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145      150      155

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<210> 12
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Clone No. 8

<400> 12

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Glu His
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Asn Asn Ala Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 13

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 9

<400> 13

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Pro Met
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110

Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Asn Pro Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 14
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No.10

<400> 14
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Lys Asp Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 15
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No.11

<400> 15

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Arg Thr Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

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<210> 16

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.12

<400> 16

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe

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130 135 140
 Arg Glu Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 17
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 13

<400> 17
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Asp Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 18
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 14

<400> 18
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg

	20		25		30
Ala Asn Ala	Leu Leu Ala	Asn Gly Val	Glu Leu Arg	Asp Asn Gln	Leu
35		40		45	
Val Val Pro	Ser Glu Gly	Leu Tyr Leu	Ile Tyr Ser	Gln Val Leu	Phe
50		55		60	
Ser Gly Gln	Gly Cys Pro	Ser Thr His	Val Leu Leu	Thr His Thr	Ile
65		70		75	80
Ser Arg Ile	Ala Val Ser	Tyr Gln Thr	Pro Val Asn	Leu Leu Ser	Ala
	85		90		95
Ile Arg Ser	Pro Cys Gln	Arg Glu Thr	Pro Glu Gly	Ala Glu Ala	Asn
	100		105		110
Pro Trp Tyr	Glu Pro Ile	Tyr Leu Gly	Gly Val Phe	Gln Leu Glu	Pro
	115		120		125
Gly Asp Arg	Leu Ser Ala	Glu Ile Asn	Arg Pro Asp	Tyr Leu Asp	Phe
130		135		140	
Ala Asn Asp	Gly Gln Val	Tyr Phe Gly	Ile Ile Ala	Leu	
145		150		155	

<210> 19

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.35

<400> 19

Val Arg Ser	Ser Ser Arg	Thr Pro Ser	Asp Met Pro	Val Ala His	Val
1		5		10	15
Val Ala Asn	Pro Gln Ala	Glu Gly Gln	Leu Gln Trp	Leu Asn Arg	Arg
	20		25		30
Ala Asn Ala	Leu Leu Ala	Asn Gly Val	Glu Leu Arg	Asp Asn Gln	Leu
35		40		45	
Val Val Pro	Ser Glu Gly	Leu Tyr Leu	Ile Tyr Ser	Gln Val Leu	Phe
50		55		60	
Ser Gly Gln	Gly Cys Pro	Ser Thr His	Val Leu Leu	Thr His Thr	Ile
65		70		75	80
Ser Arg Ile	Thr Pro Ala	Ile Asn Arg	Pro Val Asn	Leu Leu Ser	Ala
	85		90		95
Ile Arg Ser	Pro Cys Gln	Arg Glu Thr	Pro Glu Gly	Ala Glu Ala	Asn
	100		105		110
Pro Trp Tyr	Glu Pro Ile	Tyr Leu Gly	Gly Val Phe	Gln Leu Glu	Pro
	115		120		125
Gly Asp Arg	Leu Ser Ala	Glu Ile Asn	Arg Pro Asp	Tyr Leu Asp	Phe
130		135		140	
Ala Glu Ser	Gly Gln Val	Tyr Phe Gly	Ile Ile Ala	Leu	
145		150		155	

<210> 20
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 36

<400> 20
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Pro Gly Tyr Ser His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 21
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 37

<400> 21
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45

Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Thr Thr His Asn Gln Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 22

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 38

<400> 22

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Gly Gly Pro Tyr Gln Arg Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 23

<211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 5

<400> 23

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg agg aac tcg cac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Ser His
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
tcg ggc acc ggg cag gtc tac ttt ggg atc att gcc ctg
Ser Gly Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 24
 <211> 441
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 6

<400> 24

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
   1             5             10             15
gta gca aac cct caa gct gag ggg cag ctc cag tgg tcg aac cgg tac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Arg Tyr
      20             25             30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35             40             45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50             55             60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65             70             75             80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85             90             95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100            105            110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115            120            125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130            135            140
tcc atg tag
Ser Met
145

```

<210> 25

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 7

<400> 25

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
   1             5             10             15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cac aac aac acg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp His Asn Asn Thr
      20             25             30

```

```

gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65              70              75              80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100             105             110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115             120             125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130             135             140
gac tcc aac ggg cag gtc tac ttt ggg atc att gcc ctg
Asp Ser Asn Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145              150              155

```

<210> 26

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 8

<400> 26

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cgc aac gag cac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Glu His
      20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240

```

```

Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65              70              75              80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
              85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
              100             105             110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
              115             120             125
ggt gac oga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
              130             135             140
aac aac gcg ggg cag gtc tac ttt ggg atc att gcc ctg
Asn Asn Ala Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145              150              155

```

<210> 27

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 9

<400> 27

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gtc aga tca tot tot cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg agc aac ccc atg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Pro Met
20     25     30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
35     40     45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
50     55     60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65              70              75              80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
              85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

```

      100      105      110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
gcc aac ccc ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Asn Pro Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145      150      155

```

<210> 28
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 10

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<400> 28
gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20      25      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50      55      60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65      70      75      80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85      90      95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100      105      110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140

```

aag gac acg ggg cag gtc tac ttt ggg atc att gcc ctg
 Lys Asp Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 29

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 11

<400> 29

gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 cgg acg gac ggg cag gtc tac ttt ggg atc att gcc ctg
 Arg Thr Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 30

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 12

<400> 30

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg oca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
agg gag acg ggg cag gtc tac ttt ggg atc att gcc ctg
Arg Glu Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 31

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 13

<400> 31

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gac gac ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Asp Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 32

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 14

<400> 32

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144

```

Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc aac gac ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Asn Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 33

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 35

<400> 33

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile


```

65          70          75          80
agc cgc atc acc ccc gcc atc aac cgg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Pro Ala Ile Asn Arg Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

```

<210> 34

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 36

<400> 34

```

gtc aga tca tct tct cga acc ccg agt gac atg oct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65          70          75          80
agc cgc atc gcg ccc ggc tac tcc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Pro Gly Tyr Ser His Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110

```

ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 35
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 37

<400> 35
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc agc acc acc cac aac cag ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ser Thr Thr His Asn Gln Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg

Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 36

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 38

<400> 36

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65          70          75          80
agc cgc atc ggc ggc ccg tac cag cgg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Gly Gly Pro Tyr Gln Arg Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145 150 155

```

<210> 37

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 1

<400> 37

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Gln Asn Arg Trp
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

```

<210> 38

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 2

<400> 38

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Thr Asn Gly Tyr
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

```

      100      105      110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145      150      155

```

<210> 39
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 3

```

<400> 39
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1          5          10          15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Ser Asp
      20      25      30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50      55      60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65      70      75      80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85      90      95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100      105      110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
Ala Ala Arg Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145      150      155

```

<210> 40
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 4

```

<400> 40
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

```

```

      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Lys Asn Ala Gly
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Ser Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 41

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.16

<400> 41

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Ser Ser Thr Tyr Pro Asp Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

```

145

150

155

<210> 42

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 17

<400> 42

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Lys Thr Tyr Thr His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 43

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 18

<400> 43

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Pro Leu Tyr Pro Lys Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 44

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.19.

<400> 44

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Tyr Asn Tyr Asn Gly Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 45

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.20

<400> 45

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
    35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65           70           75           80
Ser Arg Ile Ser Ser Ala Tyr Ala Ser Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
    100           105           110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
   115           120           125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
  130           135           140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145           150           155

```

<210> 46

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No.21

<400> 46

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
    35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65           70           75           80
Ser Arg Ile Thr Ser Ala Tyr Gly Pro Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 47
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 22

<400> 47
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Arg Val Tyr Thr Ala Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 48
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 23

<400> 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

```

      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Thr Thr Ala Tyr Ser Gly Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 49

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 24

<400> 49

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Thr His Lys Tyr Pro Gln Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

```

145

150

155

<210> 50

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 25

<400> 50

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 51

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 26

<400> 51

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

```

```

      50              55              60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65              70              75              80
Ser Arg Ile Ser Ser His Tyr Arg Phe Pro Val Asn Leu Leu Ser Ala
      85              90              95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100             105             110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115             120             125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130             135             140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145             150             155

```

<210> 52

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 27

<400> 52

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1      5      10      15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20      25      30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50      55      60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65      70      75      80
Ser Arg Ile Thr Pro Ala Tyr Pro Arg Pro Val Asn Leu Leu Ser Ala
      85      90      95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100     105     110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115     120     125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130     135     140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145     150     155

```

<210> 53

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 28

<400> 53

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
        35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65           70           75           80
Ser Arg Ile Thr Lys Ser Tyr Ser Lys Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
        100           105           110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115           120           125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
    130           135           140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145           150           155

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<210> 54

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 29

<400> 54

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
        35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65           70           75           80
Ser Arg Ile Thr Glu Gln Tyr Ser His Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```

100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 55
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 30

<400> 55
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Thr Pro Gly Tyr Pro Ser Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 56
 <211> 157
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Clone No. 31

<400> 56
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

```

      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 57

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 32

<400> 57

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
Ser Arg Ile Thr Asp Arg Tyr Ser Ser Pro Val Asn Leu Leu Ser Ala
      85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

```


145

150

155

<210> 58

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 33

<400> 58

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50           55           60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65           70           75           80
Ser Arg Ile Asn His Arg Tyr Gln Asp Pro Val Asn Leu Leu Ser Ala
          85           90           95
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145           150           155

```

<210> 59

<211> 157

<212> PRT

<213> Artificial Sequence

<220>

<223> Clone No. 34

<400> 59

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20           25           30
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35           40           45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

```

50 55 60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ser Ala Asp Tyr Pro His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 60

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No.1

<400> 60

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg cag aac agg tgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Gln Asn Arg Trp
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 61
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 2

<400> 61
 gtc aga tca tot tot cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg acg aac ggg tac 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Thr Asn Gly Tyr
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 62
 <211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 3

<400> 62

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg tcc aac agc gac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Ser Asp
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gcc cgc ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Ala Arg Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 63

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 4

<400> 63

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg aag aac gcc ggc 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Lys Asn Ala Gly
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc gcc gtc tcc tac cag acc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115           120           125
ggc gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130           135           140
gct tcg acg ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Ser Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145           150           155

```

<210> 64

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 16

<400> 64

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45

```

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65          70          75          80
agc cgc atc agc tcg acc tac ccc gac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ser Thr Tyr Pro Asp Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
          145          150          155

```

<210> 65

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 17

<400> 65

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65          70          75          80
agc cgc atc tcg aag acc tac acc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Lys Thr Tyr Thr His Pro Val Asn Leu Leu Ser Ala

```

```

      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145              150              155

```

<210> 66

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 18

<400> 66

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65              70              75              80
agc cgc atc tcc ccc ctg tac ccc aag ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Pro Leu Tyr Pro Lys Pro Val Asn Leu Leu Ser Ala
      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggg gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

```

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 67
 <211> 471
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Clone No. 19

<400> 67
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc tcc acc aac tac aac ggc ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ser Tyr Asn Tyr Asn Gly Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 68
 <211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 20

<400> 68

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
   1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
           20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
           35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
           50           55           60
tgg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
           65           70           75           80
agc cgc atc tcc agc gcg tac gcg agc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ser Ala Tyr Ala Ser Pro Val Asn Leu Leu Ser Ala
           85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
           100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
           115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
           130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145           150           155

```

<210> 69

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 21

<400> 69

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc tgc tgc gcc tac ggg ccg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Ser Ala Tyr Gly Pro Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115           120           125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130           135           140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145           150           155

```

<210> 70

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No.22

<400> 70

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45

```

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65          70          75          80
agc cgc atc tcg cgc gtg tac acc gcc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Arg Val Tyr Thr Ala Pro Val Asn Leu Leu Ser Ala
          85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
          100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
          130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 71

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 23

<400> 71

```

gtc aga tca tct tct cga acc cgg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
          20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
          50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
          65          70          75          80
agc cgc atc acg acg ggc tac agc gcc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Thr Ala Tyr Ser Gly Pro Val Asn Leu Leu Ser Ala

```

```

      85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145          150          155

```

<210> 72

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 24

<400> 72

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1          5          10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20          25          30
gcc aat gcc ctc ctg gcc aat gcc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65          70          75          80
agc cgc atc acg cac aag tac ccg cag ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr His Lys Tyr Pro Gln Pro Val Asn Leu Leu Ser Ala
      85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

```

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140

gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 73

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 25

<400> 73

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1 5 10 15
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 agc cgc atc agc aag acc tac tcc cac ccc gtc aac ctc ctc tct gcc 288
 Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
 85 90 95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100 105 110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115 120 125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 74

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 26

<400> 74

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc tcg tcc cac tac agg ttc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ser His Tyr Arg Phe Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115           120           125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130           135           140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145           150           155

```

<210> 75

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 27

<400> 75

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20      25      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50      55      60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65      70      75      80
agc cgc atc acc ccc gcc tac ccc cgg ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Pro Ala Tyr Pro Arg Pro Val Asn Leu Leu Ser Ala
      85      90      95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100      105      110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag cgc 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115      120      125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130      135      140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145      150      155

```

<210> 76

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No.28

<400> 76

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
1      5      10      15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20      25      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35      40      45

```

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65              70              75              80
agc cgc atc acg aag tcc tac tcc aag ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Lys Ser Tyr Ser Lys Pro Val Asn Leu Leu Ser Ala
              85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
              100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag cgg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
              115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
              130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
    145              150              155

```

<210> 77

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No.29

<400> 77

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
    1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
              20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
              35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65              70              75              80
agc cgc atc acc gag cag tac tcc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Glu Gln Tyr Ser His Pro Val Asn Leu Leu Ser Ala

```



```

      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145              150              155

```

<210> 78

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 30

<400> 78

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
      1              5              10              15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20              25              30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35              40              45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65              70              75              80
agc cgc atc acg ccc cag tac ccg tcc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Pro Gly Tyr Pro Ser Pro Val Asn Leu Leu Ser Ala
      85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

```

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe

130

135

140

gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg

Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

145

150

155

<210> 79

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 31

<400> 79

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

1

5

10

15

gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96

Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg

20

25

30

gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144

Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu

35

40

45

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192

Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

50

55

60

tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240

Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile

65

70

75

80

agc cgc atc agc aag acc tac tcc cac ccc gtc aac ctc ctc tct gcc 288

Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala

85

90

95

atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336

Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

100

105

110

ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384

Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro

115

120

125

ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe

130

135

140

gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg

Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

145

150

155

<210> 80

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 32

<400> 80

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
  20          25          30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
  35          40          45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
  50          55          60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65          70          75          80
agc cgc atc acg gac cgc tac agc agc ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Thr Asp Arg Tyr Ser Ser Pro Val Asn Leu Leu Ser Ala
  85          90          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 100          105          110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 115          120          125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130          135          140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145          150          155

```

<210> 81

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 33

<400> 81

```

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48

```

```

Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50           55           60
tgc ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
      65           70           75           80
agc cgc atc aac cac agg tac cag gac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Asn His Arg Tyr Gln Asp Pro Val Asn Leu Leu Ser Ala
      85           90           95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
      100           105           110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
      115           120           125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
      130           135           140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
      145           150           155

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<210> 82

<211> 471

<212> DNA

<213> Artificial Sequence

<220>

<223> Clone No. 34

<400> 82

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1           5           10           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
      20           25           30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
      35           40           45

```

```

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
    50              55              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
    65              70              75              80
agc cgc atc tcc gcg gac tac ccc cac ccc gtc aac ctc ctc tct gcc 288
Ser Arg Ile Ser Ala Asp Tyr Pro His Pro Val Asn Leu Leu Ser Ala
              85              90              95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
              100              105              110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
              115              120              125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
              130              135              140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145              150              155

```

<210> 83

<211> 87

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a primer having NNS sequences (for mutating the amino acid residues at the 29,31 and 32)

<400> 83

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gacatgcctg tagcccatgt ttagcaaac cctcaagctg aggggcagct ccagtgggns 60
aacnnsnsg ccaatgcct cctggcc

```

<210> 84

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a primer having NNS sequences (for mutating the amino acid residues at the 145 to 147)

<400> 84

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cagggcaatg atcccaaagt agacctgccc snnsnnsnna aagtcgagat agtcggg

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<210> 85

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 5'-terminal linker to insert the PCR-amplified DNA into a phagemid vector

<400> 85

cccagccggc catggccgtc agatcatctt ctggaacccc gagtgacatg cctgtagccc 60
atgtt

<210> 86

<211> 62

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified DNA into a phagemid vector

<400> 86

ggcaccggcg cacctgcggc cgcagatcca ccaccaccca gggcaatgat cccaaagtag 60
ac

<210> 87

<211> 87

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as an anti-sense primer having NNS sequences (for mutating amino acid residues at the position 84-89)

<400> 87

ctggcagggg ctgcggatgg cagagaggag attgacgggs nnsnnsnnsn nsnsnngat 60
gcggctgatg gtgtgggtga ggagcac

<210> 88

<211> 218

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified DNA into a phagemid vector

<400> 88

ggcaccggcg cacctgcggc cgcagatcca ccaccaccca gggcaatgat cccaaagtag 60

acctgccag actcgga aaa gtcgagatag tggggccgat tgatctcagc gctgagtcgg 120
tcacccggct ccagctggaa gaccctctcc agatagatgg gtcatacca ggggttgcc 180
tcagccccc ctgggggtct cctctggcag gggctgog

<210> 89

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 5'-terminal linker to insert the PCR-amplified
DNA into an expression vector

<400> 89

tatacatatg gtcagatcat cttctogaac cccgagtg

<210> 90

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified
DNA into an expression vector

<400> 90

aaggatccct acagggcaat gatcccaaag tagac